CLAIMS

What is claimed is:

1. A method for developing context dependent acoustic models, comprising the steps of:

developing a low-dimensional space from training speech data obtained from a plurality of training speakers;

representing the training speech data from each of said plurality of training speakers as the combination of a speaker dependent component and a speaker independent component;

representing said speaker dependent component as centroids within said low-dimensional space;

representing said speaker independent component as linear transformations of said centroids; and

performing maximum likelihood re-estimation on said training speech data of at least one of said low-dimensional space, said centroids, and said offsets to represent context dependent acoustic model.

2. The method of claim 1 wherein said training speech data is separated by identifying context dependent data and using said context dependent data to identify said speaker independent data.

3. The method of claim 1 wherein said training speech data is separated by identifying context independent data and using said context independent data to identify said speaker dependent data.

4. The method of claim 1 wherein said maximum likelihood re-estimation step is performed iteratively.

5. The method of claim 1 wherein said linear transformations are effected as an offsets from said centroids.

6. The method of claim 1 wherein said maximum likelihood re-estimation step generates a re-estimated low-dimensional space, re-estimated centroids and re-estimated offsets and wherein said context dependent acoustic models are constructed using said re-estimated low-dimensional space and said re-estimated offsets.

7. The method of claim 1 wherein said linear transformations of said centroids are represented in tree data structures corresponding to individual sound units.

8. The method of claim 5 wherein said offsets are represented in tree data structures corresponding to individual sound units.

9. The method of claim 1 further comprising:

using said speaker dependent component to perform speaker verification.

10. The method of claim 1 further comprising:

using said speaker dependent component to perform speaker identification.